

REMARKS

Claims 1-12 have been rejected under 35 USC 102 and 103. The bases for these rejections have been carefully considered, however, reconsideration of the rejection in light of the following remarks is respectfully requested. Consideration of newly submitted claims 13 and 14, directed to a single strand cogged V-belt, is also respectfully requested.

Before turning to the details of the rejection, it may be useful to summarize key features of the claimed invention.

The claimed invention is based largely on the discovery that by using a particular blend of aramid and polyester fibers, with relative length dimensions, one is able to significantly improve key operating parameters of a power transmission belt containing such blend in the belt body, particularly significantly increasing its tensile modulus (note particularly Figs. 3 and 4), compression strength (Fig. 5), favorable friction co-efficient characteristic (Fig. 6), durability (Fig. 9), hardness and tension (Figs. 10 and 11) and heat resistance (Fig. 12).

It is submitted that the dramatic improvements represented by the belt of the invention in comparison to the prior art underscores the nonobviousness of the invention and the advantages afforded by the belt of the invention, particularly for use as a transmission V-belt for scooter drives, variable speed drives generally and other drive systems in which transverse modulus and favorable frictional coefficients are required for suitable operation.

The Examiner is directed to the discussion in the specification from page 6, line 10 to page 7, line 24 where the technical problem and issues are discussed. As stated therein, as well as in the paragraph spanning pages 14 and 15 of the specification, by utilizing a blend of chopped aramid fibers and relatively longer chopped polyester fibers in the stock rubber, the result is a surprisingly high proportion of the chopped fibers as a whole become oriented in the same direction after processing. This, in turn, leads to dramatically improved belt performance as aforementioned in respect to tensile modulus, compression resistance, frictional properties, hardness and tension, heat resistance and, importantly, overall durability.

A. Rejection under 35 USC 102

The rejection of claims 1-2, 4-7 and 10-12 under 35 USC 102(b) as being anticipated by Ito (US 2001/0039226) is respectfully traversed.

Ito '226 fails to disclose (or suggest) the claimed blend of chopped aramid fibers and chopped polyester fibers. The passage at [0052] discloses the alternative use of

various fibers, including aramid fibers and polyester fibers among others. There is no disclosure of using a blend or mixture of the claimed aramid fibers and polyester fibers. Furthermore, there is no disclosure to specifically blend aramid fibers with polyester fibers having a greater length than the aramid fibers. The clear import of this disclosure is to select one fiber, not to form a mixture or blend.

Ito '226, consistent with the disclosure in [0052] discloses use of a single type of fiber (aramid) in working example 1 set forth on page 4, and particularly in paragraph [0069]. In addition, clearly there is no disclosure in Ito '226 of the unexpected advantages that flow with use of the claimed blends in a cogged V-belt.

Given this principal deficiency in Ito '226, Applicant will reserve any discussion with respect to any of the claims dependent on claim 1.

The rejection of claims 1, 3-5 and 9-11 under 35 USC 102 (b) as being anticipated by Kumazaki et al '143 is respectfully traversed.

Kumazaki et al '143 does disclose the possibility of using blends of different fibers, including para-aramid fibers in combination with polyester (or other) fibers in a V-ribbed belt. However, quite critically, Kumazaki et al '143 fails to disclose use of blends of fibers having differential fiber lengths and in particular fails to recite the claimed use of chopped polyester fibers longer than the chopped aramid fibers. In this respect, the Examiner makes reference to the passage in the specification of Kumazaki et al '143 at col. 4 lines 44-55, however, it is submitted that no such disclosure of differential fiber lengths is made therein (nor elsewhere in the document). It is merely stated that any of the fibers may be formed by cutting long synthetic fibers to the length of 2-6mm. There is no discrimination in size between blends of fibers, such as the specifically claimed blend of chopped aramid fibers, and relatively longer chopped polyester fibers.

One only has to consider the results of the comparative tensile strength tests set forth in Fig. 3 and 4, and compression stress set forth in Fig. 5 of the subject specification to see how important the use of longer chopped polyester fibers in relation to the chopped aramid fibers is in respect to these important belt performance parameters.

In respect to the rejections under 35 USC 102(b) under both Ito '226 and Kumazaki et al '143, Federal Circuit law is very clear that each and every element of the claimed invention must be disclosed in a single prior art reference. The corollary to this rule is that absence from a reference of any claimed element negates anticipation. Kloster Speedsteel AB v. Crucible, Inc., 230 USPQ 31 (Fed. Cir. 1986). In our case, each of Ito '226 and

Kumazaki '143 are missing a critical element and, therefore, cannot serve as anticipating references.

B. Rejection under 35 USC 103

The rejection of claim 3 under 35 USC 103(a) as being unpatentable over Ito '226 in view of Kinoshita et al US Patent No. 5,891,561 is respectfully traversed.

It is submitted that the rejection immediately fails because the premise that Ito '226 discloses all of the claim limitations is not correct as discussed fully above. In addition, while it is conceded that Kinoshita et al '561 discloses fiber loadings in the range of 1-30 weight parts per 100 weight parts per HNBR rubber, the reference does not suggest the blending of chopped aramid fibers and relatively longer chopped polyester fibers as provided for in all of the claims.

The rejection of claim 8 under 35 USC 103(a) as unpatentable over Ito '226 in view of Kodama US Patent No. 5,908,520 is also respectfully traversed.

Again, it is submitted that the underpinning for the rejection, that Ito '226 assertedly discloses all of the claim limitations, has been shown to be not correct, per the above discussion. Beyond that, it is conceded that Kodama '520 recognizes that PET fiber is a type of polyester fiber and that it has a higher modulus of elasticity than certain other polyester fibers. However, there is nothing in Kodama '520 that makes up for the basic deficiency in the rejection.

C. Newly submitted claims

Claim 13 is directed to a cogged V-belt (a different class of belt from a V-ribbed belt, as disclosed for instance in Kumazaki et al '143 and Kinoshita et al '561) in which both the tension (top rubber layer) and compression (bottom rubber layer) sections of the belt are loaded with the claimed chopped aramid fibers and relatively longer chopped polyester fibers.

Claim 14 dependent on claim 13 further provides for the aramid fibers to have a length of less than 3mm and the polyester fibers to have a length of less than 5mm, certainly outside the preferred ranges disclosed in Ito '226. This claim also provides for the total loading of the fibers in respect to the base rubber, also not disclosed or suggested in Ito '226.

D. Information Disclosure Statement


In compliance with Applicant's duty to present any new references that it becomes aware of that could be material to the examination of the subject case, Applicant attaches a copy of the search report issued by the European Patent Office and PTO Form A820. If the Examiner could provide her initials adjacent each reference on the form, it would be appreciated. It is submitted that none of these references discloses or renders obvious any of claims 1-14 of the captioned case.

FEE STATEMENT

Any fees which may be required as a result of the amendments made herein are authorized to be charged to Assignee's deposit account number 07-0475.

Favorable reconsideration of this application is respectfully solicited.

Respectfully submitted,


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Enclosures: EPO Search Report
PTO Form A820

Denver, Colorado

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